WHAT'S BEHIND **THE FORM?**

Grades 6-12

1. How many people live in your household?

2. What are their ages?

● Now students are ready to conduct their surveys. Discuss how they will gather and record data from the five households. Remind them to apply what they learned from "Think It Through Before You Start."

● After students have finished their surveys, have them transfer the age data they've collected onto a separate sheet of paper, arranging the ages from youngest to oldest.

● Review with your students the steps for calculating mean, median, percentage, and range on Activity Worksheet 7A (page 26). Then have students use the data they collected from their survey to answer the questions on that page.

Wrapping Up:

1. Compare students' answers to the figures shown for the Commonwealth of the Northern Mariana Islands on the Activity Worksheet. Responses will vary, but students should be able to explain their work.

● Revisit "Think It Through Before You Start" (page 25) with your students and ask them to reconsider each of the questions in light of their recent survey experience. **What obstacles did they encounter? Did they obtain the results they expected? If they were asked to conduct another survey, would they do anything differently?** Explain that the Census Bureau also faces many difficulties during the taking of a census such as determining which questions to ask, tracking down hard-to-reach respondents, ensuring the accuracy of an enormous amount of information, and deciding how to present the data collected to a wide range of audiences. The Bureau must also contend with people who won't fill out the form because they fear their answers won't be kept confidential. **From what you've learned, how would you suggest that the Census Bureau deal with these issues?**

● Ask students whether they think the results of the 2000 census will differ from those of 1990. If so, why?

2. Photocopy and distribute the Census 2000 questions on page 29. Explain to students that this form offers some examples of actual census questions.

Extension Activity on Page 27:

Grades 10-12: In this activity, students will learn about population estimates and projections, and compare population projections based on numerical (arithmetic) change and percent (geometric) change. Help students understand that information about the population in CNMI is important for a variety of purposes, including planning in both the public sector (e.g., where to build schools) and the private sector (e.g., where to locate a store), and that population figures are used in determining federal and Commonwealth fund allocations.

● Photocopy and distribute Activity Worksheet 7B (page 27) and discuss the problems with your class. Have students individually, or in pairs, calculate the answers to the questions.

Answers for Page 27:

1. 66,611.
2. 33,705 and 349.6 percent.
3. 77,050 and 194,879.
4. Because the percent increase is applied to a larger population in 1990 than in 1970.

Think It Through **Before You Start**

To conduct a successful survey you need to be well-organized and prepared to handle obstacles you'll find along your way. Answer the following questions before embarking on your research.

1. Who will you collect the information from?
The information you collect for each household may vary depending on which person you interview. For example, a young child may not know the exact ages of all the household members, whereas an adult in the household probably will.

2. When will you collect the information?
You may be more likely to reach a respondent during evening hours. During daytime hours, many respondents will be unavailable because they are at work or in school.

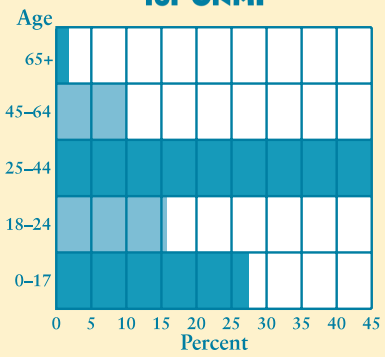
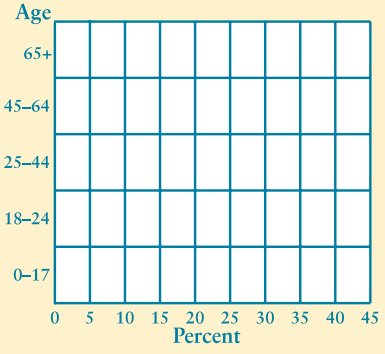
3. How will you collect the information?
Via telephone, face-to-face interview, or mail questionnaire? A phone survey is generally economical and efficient, but remember that some households don't have phone service. In-person interviews are the most time-consuming because they require visiting the household being surveyed. With a mail questionnaire, you'll need a printed form that respondents can fill out and return, but be aware that postage and printing costs can add up quickly.

4. How will you deal with a respondent who refuses to participate?
People who refuse to take part in a survey often do so because they fear the information they provide will be shared with others. Assuring confidentiality increases the likelihood that those you survey will answer your questions. The Census Bureau, for example, does not share the information it collects with any other government agencies, and its employees take a sworn oath to keep the information they collect confidential. In addition, all census data are aggregated — no characteristics of individuals are ever revealed.

5. How will you check the accuracy of the data you collect?
Keep an eye out for suspicious numbers such as a household with 50 members or an individual who is 200 years old. If you see these kinds of aberrations, the best thing to do is resurvey the household in question to correct any errors.

6. How will you present your data once your survey is complete?
Possibilities include creating charts, tables, graphs, or preparing a written or oral report.

Use the data collected from your own survey to solve the following problems:

Problem to Solve	How to Solve the Problem	1990 Census Results	Solution to the Problem
Find the **Mean Number** of Persons Per Household from Your Survey	The **mean** is the average of all the numbers in a set of numbers. Write down how many people live in each household you surveyed. Add the numbers, then divide by the number of addends.	**1990 Mean Number of Persons Per Household in CNMI** **4.63**	Write Your Answer Here
Find the **Median Age** of the Respondents from Your Survey	The **median** is the middle number (or the average of the two middle numbers) in a set of numbers. Write down the age data you've collected from youngest to oldest. Find the median by crossing out numbers, one from each end, until only one number is left. If two numbers are left, find the mean of the two.	**1990 Median Age of Residents of CNMI** **27.4**	Write Your Answer Here
Find the **Age Range** of the Respondents from Your Survey	The **range** is the difference between the largest number and the smallest number in a set of numbers. As above, arrange the age data you've collected in order from youngest to oldest. Subtract the youngest from the oldest to find the age range of your population.	**1990 Age Range of Residents of CNMI** **99**	Write Your Answer Here
Find the **Percent Distribution** of Population by Age from Your Survey	Sort the age data you've collected according to the following age categories: 0–17, 18–24, 25–44, 45–64, and 65+. Divide the number of individuals that falls into each age category by the total number of respondents. Multiply by 100. This will tell you what **percentage** of respondents falls into a particular age category. Using the graph at right as a model, plot the percentages for the data you've collected in the last column.	**1990 Percent Distribution of Population by Age for CNMI** 	

Name: _____

Population **Estimates/Projections**

Grades 10-12

● Enumerations, Estimates, and Projections of Population

The U.S. Census Bureau produces three basic types of information about the U.S. population: enumerations, estimates, and projections. Enumerations are counts of the population, as in the 1990 census of population. Estimates are calculations of the population for a recent date and are usually based on the last census as well as on information about population change since the last census. Projections are calculations of the population for a future date and are usually based on the last census or estimate, and on assumptions about future population growth or decline.

● Population Estimates

The three components of population change between two dates are births, deaths, and net migration (immigration to CNMI minus emigration from CNMI).

For the Commonwealth of the Northern Mariana Islands, the population in 1990 was 43,345. For the 1990–1998 period, data on the components of population show the following:

births (B) = 12,056, deaths (D) = 1,249, net migration (NM) = +12,459.

1. Calculate the 1998 population estimate for CNMI using the following formula:

$$P_{1998} = P_{1990} + B - D + NM$$

● Population Projections

The three components of population change between two dates are births, deaths, and net migration. To make population projections for the Commonwealth of the Northern Mariana Islands, demographers make assumptions about future trends in the components of population change.

2. Table A shows the 1970 and 1990 census populations for CNMI. Calculate numerical change (1990 population minus 1970 population) and percent change (numerical change as a percent of 1970 population, with percent change rounded to one decimal place).

Table A. Population Change of the Commonwealth of the Northern Mariana Islands: 1970 and 1990

1970 Population	1990 Population	Numerical change	Percent change
9,640	43,345		

3. Calculate population projections for the Commonwealth of the Northern Mariana Islands for the year 2010 assuming a continuation of trends for the 1970–1990 period: first based on numerical change, then based on percent change (as calculated above), with the results rounded to the nearest integer.

Table B. Population Projections for the Commonwealth of the Northern Mariana Islands for 2010

Based on numerical change	Based on percent change

4. Why is the population projection for the year 2010 larger when based on percent change than when based on numerical change for the 1970–1990 period?

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